

ABSTRACT

Compounds and processes for catalytic ring-opening cyclooligomerization metathesis and ring-closing metathesis of olefins are described. The compound is a molybdenum or tungsten metal (M) complex which comprises an imido ligand (N-R) bound to the M to provide an M=N-R site, an M=C reaction site wherein the C of the M=C reaction site is tethered to the R of the imido ligand via a carbon or carbon and heteroatom (NOS) chain containing 1 to 12 carbon atoms to form a ring structure, and two to four ligands (R') bound to the M to provide two to four M-R' sites. In particular embodiments, the M-R' sites include each of the oxygens of a dialkoxide ligand or each of the nitrogens of an η^1 -pyrrolyl ligand bound to the M.